

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of :
Young-lak KIM :
Serial No. 10/575,171 : Group Art Unit: 2617
Filed: April 7, 2006 : Examiner: Munjalkumar, Patel C.
For: METHOD FOR MODEM SWITCHING FOR USE WITH MM-MB TERMINAL

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Commissioner for Patents
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Attn: BOARD OF PATENT APPEALS AND INTERFERENCES

SECOND APPELLANT'S BRIEF UNDER 37 C.F.R. § 41.37(c)

This brief is a *second* Appeal Brief in this case. A *second* Notice of Appeal is concurrently filed herewith.

The fees required under § 41.20 and any required petition for extension of time for filing this brief and fees therefore, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

Only one copy of this brief is required under § 41.37.

This brief contains these items under the following headings, and in the order set forth below (*37 C.F.R. § 41.37(c)*):

- I. Real Party in Interest.
- II. Related Appeals and Interferences.
- III. Status of Claims.
- IV. Status of Amendments.
- V. Summary of Claimed Subject Matter.
- VI. Grounds of Rejection to be Reviewed on Appeal.
- VII. Argument.
- VIII. Claims Appendix.
- IX. Evidence Appendix.
- X. Related Proceedings Appendix.

The final page of this brief bears the attorney's signature.

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is SK Telecom Co., Ltd. of 11 Euljiro 2(I)-Ga, Jung-Gu, Seoul, Republic of Korea.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS¹

A. Total Number of Claims in Application

There is a total of 22 claims in the application, which are identified as claims 1-2, 4-7, 9-15, 17, 21, 24-30.

B. Status of all the claims

1. Claims cancelled: claims 3, 8, 16, 18-20, 22-23, 31-32
2. Claims withdrawn from consideration but not cancelled: none
3. Claims pending: claims 1-2, 4-7, 9-15, 17, 21, 24-30
4. Claims allowed: none
5. Claims rejected: claims 1-2, 4-7, 9-15, 17, 21, 24-30

C. Claims on Appeal

Claims on appeal are claims 1-2, 4-7, 9-15, 17, 21, 24-30 as rejected by the Office Action dated October 14, 2010 (herein after the “last Office Action”).

¹ The claim listing and status in this section reflect the changes made in the concurrently filed Amendment as detailed in the following section.

IV. STATUS OF AMENDMENTS

An Amendment is concurrently filed herewith in response to the last Office Action. The Amendment cancels claims 16, 18-20, 22-23 and rewrite claims 17 and 21 in independent form without otherwise touching the merits. Thus, the changes in the Amendment are solely to simplify the issues (canceled claims 16, 18-20, 22-23) and place claims 17, 21 in better condition on appeal, and should be entered.

For the purpose of this Appeal Brief, Appellant assumes that the Amendment has been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

For the purpose of this appeal brief only, the claimed subject matter will be explained herein below with references to the specification by page and line number, and to the drawings by reference characters.

The invention of **independent claim 1** is directed to a method (FIG. 5) of switching between a WCDMA modem (342, FIG. 3) and a CDMA-2000 modem (344, FIG. 3) of an MM-MB (multimode-multiband) terminal (300, FIG. 3), when the MM-MB terminal being in a WCDMA idle state (S500, FIG. 5) moves from an overlay zone (130, FIG. 1) into a CDMA-2000 zone (120, FIG. 1),² said method comprising the steps of:

- (a) receiving a WCDMA signal transmitted from a WCDMA system, and measuring an Ec/Io (energy of carrier/interference of others) value by using the WCDMA signal;³
- (b) determining whether the Ec/Io value is lower than a predetermined CDMA-2000 ON threshold TH_{ON} (FIG. 4);⁴
- (c) if it is determined at step (b) that the Ec/Io value is lower than TH_{ON}, starting to measure a time lapse, wherein the time lapse is a cumulative time during which the Ec/Io value remains lower than the CDMA-2000 ON threshold TH_{ON}, and determining whether the time lapse exceeds a preset CDMA-2000 ON condition time H_d (FIG. 4);⁵
- (d) if it is determined at step (c) that the time lapse exceeds H_d, activating the CDMA-2000 modem,⁶ wherein the CDMA-2000 modem is activated before the MM-MB

² Specification of the published application at paragraphs 0044-0046, and FIG. 4.

³ Specification of the published application at paragraph 0048, and FIG. 5 at S502.

⁴ Specification of the published application at paragraph 0049, and FIG. 5 at S504.

⁵ Specification of the published application at paragraphs 0049-0050, and FIG. 5 at S506, S508.

⁶ Specification of the published application at paragraph 0050, and FIG. 5 at S510.

terminal leaves the overlay zone and while the WCDMA modem is still being activated to keep the MM-MB terminal in the WCDMA idle state;⁷ and

(e) performing an initialization for a CDMA-2000 system to switch the MM-MB terminal from the WCDMA idle state into a CDMA-2000 idle state.⁸

The invention of **independent claim 6** is directed to a method (FIG. 7) of switching between a WCDMA modem (342, FIG. 3) and a CDMA-2000 modem (344, FIG. 3) of an MM-MB terminal (300, FIG. 3), when the MM-MB terminal moves from an overlay zone (130, FIG. 1) into a CDMA-2000 zone (132, FIG. 1) while handling a WCDMA call,⁹ said method comprising the steps of:

(a) while the MM-MB terminal is handling the WCDMA call by the active WCDMA modem,¹⁰ receiving a WCDMA signal transmitted from a WCDMA system, and measuring an Ec/Io (energy of carrier/interference of others) value by using the WCDMA signal;¹¹

(b) determining whether the Ec/Io value is lower than a predetermined CDMA-2000 ON threshold TH_{ON} (FIG. 6);¹²

(c) if it is determined at step (b) that the Ec/Io value is lower than TH_{ON}, starting to measure a time lapse, wherein the time lapse is a cumulative time during which the Ec/Io value remains lower than the CDMA-2000 ON threshold TH_{ON}, and determining whether the time lapse exceeds a preset CDMA-2000 ON condition time H_d (FIG. 6);¹³

⁷ Specification of the published application at paragraphs 0045-0046.

⁸ Specification of the published application at paragraph 0052, and FIG. 5 at S512, S514.

⁹ Specification of the published application at paragraphs 0053-0059, and FIG. 6.

¹⁰ Specification of the published application at paragraph 0061, and FIG. 7 at S700.

¹¹ Specification of the published application at paragraphs 0061 and 0048, and FIG. 7 at S702.

¹² Specification of the published application at paragraphs 0061 and 0049, and FIG. 7 at S704.

¹³ Specification of the published application at paragraphs 0061 and 0049-0050, and FIG. 7 at S706, S708.

(d) before the MM-MB terminal leaves the overlay zone and while the WCDMA modem is still actively handling the WCDMA call,¹⁴ if it is determined at step (c) that the time lapse exceeds H_d , activating the CDMA-2000 modem,¹⁵ and then determining whether the WCDMA call has been terminated;¹⁶ and

(e) if the WCDMA call is determined at step (d) to have been terminated, performing an initialization for a CDMA-2000 system to switch the MM-MB terminal into a CDMA-2000 idle state.¹⁷

The invention of **independent claim 17** is directed to a method (FIG. 8) of switching between a CDMA-2000 modem (344, FIG. 3) and a WCDMA modem (342, FIG. 3) of an MM-MB (multimode-multiband) terminal (300, FIG. 3), when the MM-MB terminal being in a CDMA-2000 idle state (S800, FIG. 8) moves from a CDMA-2000 zone (120, FIG. 1) into an overlay zone (130, FIG. 1), said method comprising the steps of:

(a) monitoring a paging channel of a CDMA-2000 system periodically while maintaining the MM-MB terminal in the CDMA-2000 idle state;¹⁸

(b) analyzing an overhead message received from the CDMA-2000 system and determining whether the MM-MB terminal is located in the overlay zone;¹⁹

(c) if the MM-MB terminal is determined to be located in the overlay zone, activating the WCDMA modem while maintaining the CDMA-2000 modem in an activated state;²⁰ and

(d) performing an initialization process for a WCDMA system to switch the MM-MB terminal from the CDMA-2000 idle state into a WCDMA idle state;²¹

¹⁴ Specification of the published application at paragraph 0055.

¹⁵ Specification of the published application at paragraphs 0061 and 0050, and FIG. 7 at S710.

¹⁶ Specification of the published application at paragraph 0062, and FIG. 7 at S712.

¹⁷ Specification of the published application at paragraph 0063, and FIG. 7 at S720.

¹⁸ Specification of the published application at paragraph 0069, and FIG. 8 at S802.

¹⁹ Specification of the published application at paragraphs 0070-0071, and FIG. 8 at S804.

wherein the MM-MB terminal determines whether the MM-MB terminal is located in the overlay zone by investigating a base ID of a system parameter message included in the overhead message analyzed at step (b).²²

The invention of **independent claim 21** is directed to a method (FIG. 9) of switching between a CDMA-2000 modem (344, FIG. 3) and a WCDMA modem (342, FIG. 3) of an MM-MB (multimode-multiband) terminal (300, FIG. 3), when the MM-MB terminal being in a CDMA-2000 traffic state (S900, FIG. 9) moves from a CDMA-2000 zone (120, FIG. 1) into an overlay zone (130, FIG. 1), said method comprising the steps of:

- (a) monitoring a paging channel of a CDMA-2000 system periodically while maintaining the MM-MB terminal in the CDMA-2000 traffic state and the CDMA modem in an activated state to handle a CDMA-2000 call;²³
- (b) analyzing an overhead message received from the CDMA-2000 system and determining whether the MM-MB terminal is located in the overlay zone;²⁴
- (c) if the MM-MB terminal is determined to be located in the overlay zone,²⁵ determining whether the CDMA-2000 call has been terminated while maintaining the MM-MB terminal in the CDMA-2000 traffic state;²⁶
- (d) if the CDMA-2000 call is determined to have been terminated, activating the WCDMA modem;²⁷ and
- (e) performing an initialization process for a WCDMA system to switch the MM-MB terminal into a WCDMA idle state;²⁸

²⁰ Specification of the published application at paragraph 0072, and FIG. 8 at S806, S808.

²¹ Specification of the published application at paragraph 0073, and FIG. 8 at S810, S812.

²² Specification of the published application at paragraph 0072, and FIG. 8 at S806.

²³ Specification of the published application at paragraphs 0075 and 0069, and FIG. 9 at S902.

²⁴ Specification of the published application at paragraphs 0075 and 0070-0071, and FIG. 9 at S904.

²⁵ Specification of the published application at paragraphs 0075 and 0072, and FIG. 9 at S906.

²⁶ Specification of the published application at paragraph 0076, and FIG. 9 at S908, S910.

²⁷ Specification of the published application at paragraph 0077, and FIG. 9 at S914.

wherein the MM-MB terminal determines whether the MM-MB terminal is located in the overlay zone by investigating a base ID of a system parameter message included in the overhead message analyzed at step (b).²⁹

The invention of **independent claim 24** is directed to a multimode-multiband terminal (300, FIG. 3) capable of accommodating both a synchronous CDMA-2000 service and an asynchronous WCDMA service and operating in at least two frequency bands,³⁰ said terminal comprising:

an RF (radio frequency) antenna (310, FIG. 3) for transceiving a CDMA-2000 signal and/or a WCDMA signal;³¹

an RF transceiver (320, FIG. 3) coupled to the RF antenna for demodulating a WCDMA pilot signal received from the RF antenna and outputting the demodulated WCDMA pilot signal;³²

a pilot signal measurement unit (350, FIG. 3) coupled to the RF transceiver for measuring an intensity of the demodulated WCDMA pilot signal to generate an Ec/Io value;³³

a WCDMA modem (342, FIG. 3) and a CDMA-2000 modem (344, FIG. 3) coupled to the RF transceiver for processing a digital signal received from the RF transceiver and performing a call processing according to protocols defined by a WCDMA standard and a CDMA-2000 standard, respectively,³⁴

²⁸ Specification of the published application at paragraph 0077, and FIG. 9 at S916, S918.

²⁹ Specification of the published application at paragraphs 0075, 0072, and FIG. 9 at S906.

³⁰ Specification of the published application at paragraphs 0037, also note paragraph 0009.

³¹ Specification of the published application at paragraphs 0037, also note paragraph 0012.

³² Specification of the published application at paragraphs 0037, also note paragraph 0012.

³³ Specification of the published application at paragraph 0039.

³⁴ Specification of the published application at paragraphs 0037, also note paragraph 0013.

a memory (370, FIG. 3) for storing a modem-to-modem switching program configured for switching between the WCDMA modem and the CDMA-2000 modem based the Ec/Io value;³⁵ and

a controller (360, FIG. 3) coupled to the pilot signal measurement unit, the memory and the WCDMA and CDMA-2000 modems for

- (i) receiving the Ec/Io value from the pilot signal measurement unit, and
- (ii) loading and executing the modem-to-modem switching program from the memory to activate the CDMA-2000 modem, while the WCDMA modem is still being activated, if a time lapse, during which the Ec/Io value remains lower than a predetermined CDMA-2000 ON threshold TH_{ON} , is greater than a preset CDMA-2000 ON condition time H_d .³⁶

³⁵ Specification of the published application at paragraph 0043.

³⁶ Specification of the published application at paragraph 0042, also note FIG. 4 and paragraphs 0044-0046.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The only ground of rejection to be reviewed on appeal is the *35 U.S.C. 103(a)* rejection of claims 1-2, 4-7, 9-15, 17, 21, 24-30 as being unpatentable over *Amerga* (U.S. Patent No. 7,110,765) in view of *Choi* (U.S. Patent No. 7,096,020).

VII. ARGUMENT

Ground of Rejection to be Reviewed on Appeal

35 U.S.C. 103(a) rejection of claims 1-2, 4-7, 9-15, 17, 21, 24-30 as being unpatentable over Amerga in view of Choi

Appellant respectfully traverses this rejection for the following reasons.

Rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR International Co. v. Teleflex Inc.*, 550 U.S. at 417, 82 USPQ2d at 1396.

Claim 1

A. The applied references, especially *Amerga*, fail to teach or suggest the claimed

(c) if it is determined at step (b) that the Ec/Io value is lower than TH_{ON} , starting to measure a time lapse, wherein the time lapse is a cumulative time during which the Ec/Io value remains lower than the CDMA-2000 ON threshold TH_{ON} , and determining whether the time lapse exceeds a preset CDMA-2000 ON condition time H_d ;

The Examiner alleged ³⁷ that the claim feature is taught by *Amerga* at column 8 lines 11-14, FIG. 3, FIG. 5A, column 10 lines 44-49. Appellant respectfully disagrees.

Amerga at column 8 lines 11-14 and FIG. 3 discloses a method of cell reselection.³⁸ No time lapse is taught or suggested in column 8 lines 11-14 and FIG. 3 of *Amerga*.

Amerga at FIG. 5A and column 10 lines 44-49 discloses a timer value $T_{sr,n}$ which is an indicator of how long a cell has met the selection criteria S.³⁹ *Amerga* explains that

³⁷ The last Office Action, at page 3, the last paragraph (paragraph (c)).

³⁸ See also *Amerga* at column 2 lines 64-65.

³⁹ *Amerga* at FIG. 5B, S520.

If the cell selection criteria S do not fulfill cell selection requirements for a preset number, N, of consecutive DRX cycles, the mobile station should initiate measurements on the neighbor cells (i.e. the monitored list) and attempt to reselect to another cell...⁴⁰...Cell selection fails when the S criteria, S_{qual} and S_{rxlev} , are less than zero.⁴¹

A person of ordinary skill in the art would understand that the *Amerga* selection criteria S are met when they are greater than a threshold. Thus, the timer value $T_{\text{sr},n}$, which is an indicator of how long a cell has met the selection criteria S, is actually an indicator of how long the selection criteria S of the current cell remains higher than a threshold. This is opposite to the claimed time lapse which is a cumulative time during which the $E_{\text{c}}/I_{\text{o}}$ value remains lower than the CDMA-2000 ON threshold $T_{\text{HO},n}$.

Thus, notwithstanding the Examiner's allegation to the contrary,⁴² the *Amerga* teachings cited by the Examiner do not explicitly meet the claimed feature at issue. The Examiner's rationale (i.e., "how long") in the Response to Arguments section of the last Office Action is not on point. Appellant specified that the cited teaching of *Amerga* discloses measuring a period where selection criteria S of the current cell remains higher than a threshold which is contrary to the lower claim requirement. The Examiner has not responded to this point.

The *Amerga* reference also fails to implicitly teach the claim feature, because the Examiner has failed to provide "a basis in fact and/or technical reasoning to reasonably support the determination that the [claim feature] necessarily flows from the teachings of the applied prior art."⁴³ The Examiner merely repeats the same "how long" rationale⁴⁴ in the response to Appellant's arguments which is, again, not on point.

The Examiner has further failed to provide a clear articulation⁴⁵ of the reason(s) why it would have been obvious to have modified the *Amerga* timer value to measure a time lapse as

⁴⁰ *Amerga* at column 8 lines 33-66.

⁴¹ *Amerga* at column 9 lines 11-12.

⁴² The last Office Action, at page 23, paragraph a.

⁴³ *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis added).

⁴⁴ The last Office Action, at page 23, paragraph b.

⁴⁵ Rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR International Co. v. Teleflex Inc.*, 550 U.S. at 417, 82 USPQ2d at 1396.

presently claimed. The Examiner again repeats the same “how long” rationale⁴⁶ in the response to Appellant’s arguments which is, again, not on point and does not amount to a clear articulation required by the *KSR* case.

Finally, it should be further noted that *Amerga* specifically teaches away from the claimed time lapse which is a cumulative time during which the Ec/Io value remains lower than the CDMA-2000 ON threshold TH_{ON}. In *Amerga*, if the S criteria are not met,⁴⁷ i.e., are lower than a threshold), the timer value T_{sr,n} will be immediately erased, i.e., no time lapse is measured if the S criteria are lower than the threshold. The Examiner, responding to this argument, again repeats the same “how long” rationale⁴⁸ which is, again, not on point.

It should be now clear that *Amerga* fails to teach the claim feature at issue, both explicitly and implicitly. The reference also fails to render obvious the claim feature at issue, especially because *Amerga* teaches away from the claim feature. The reference therefore fails to teach or suggest the claimed time lapse. The deficiency of *Amerga* is not curable by the teaching reference of *Choi* which is relied on for other claim limitations.

Accordingly, Appellant respectfully submits that even if *Amerga* and *Choi* were combinable (which Appellant contends to the contrary), the combination would still fail to teach or suggest the claimed time lapse.

B. The applied references, especially *Choi*, fail to teach or suggest the claimed

- (d) if it is determined at step (c) that the time lapse exceeds H_d, activating the CDMA-2000 modem, wherein the CDMA-2000 modem is activated before the MM-MB terminal leaves the overlay zone and while the WCDMA modem is still being activated to keep the MM-MB terminal in the WCDMA *idle* state;

The Examiner admitted that *Amerga* does not teach or suggest the claim feature at issue. The Examiner then alleged that *Choi* teaches the missing feature at column 6 line 58 - column 7 line 17. Appellant respectfully disagrees.

⁴⁶ The last Office Action, at page 23, paragraph b.

⁴⁷ *Amerga* at FIG. 5B, arrow Narrator: from 520 to 522.

⁴⁸ The last Office Action, at page 24, paragraph c.

The cited portion of *Choi* appears to disclose a handoff process, wherein the mobile terminal (MB) is switched from a WCDMA system to a CDMA system. However, the *Choi* handoff process requires

- a WCDMA call to be made,⁴⁹
- then a CDMA call to be established alongside the WCDMA call,⁵⁰ and
- finally, a release of the WCDMA call⁵¹ to retain only the CDMA call.⁵²

Thus, in the *Choi* handoff process, a WCDMA call must be made and, hence, the WCDMA idle state of the terminal cannot be kept, contrary to the claim requirement highlighted above.

Accordingly, even if the handoff process of *Choi* could be properly combined with *Amerga* (which Appellant contends to the contrary), the combination would still require a WCDMA call to be made for handoff purposes (as required by *Choi*), failing to teach or disclose the claim feature at issue, i.e., “to keep the MM-MB terminal in the WCDMA idle state.”

The Examiner’s response⁵³ to the above argument is noted. It is acknowledged that *Amerga* in column 4 lines 45-48 cited by the Examiner discloses a cell reselection process during the idle mode. The teaching reference of *Choi*, on the other hand, discloses a handoff process during which a WCDMA call must be made,⁵⁴ i.e., the WCDMA idle mode cannot be maintained.

A person of ordinary skill in the art would have modified, at best and if at all, *Amerga* to include the handoff process of *Choi* to handle handoff during the traffic mode (because a call must be made per *Choi* for proper handoff). The Examiner’s response⁵⁵ is noted. Appellant respectfully disagrees because *Choi* does not “simply” show a hand-off process. Rather, the *Choi* reference discloses a hand-off process during the traffic mode which would not be properly

⁴⁹ *Choi* at column 6 line 61, column 7 line 13.

⁵⁰ *Choi* at column 7 lines 2 and 12.

⁵¹ *Choi* at column 7 lines 13-15.

⁵² *Choi* at the paragraph bridging columns 2-3.

⁵³ The last Office Action, at page 24, paragraph d.

⁵⁴ The Examiner seems to reach the same conclusion that the traffic mode should be maintained in the last Office Action, page 4, lines 4-5 from bottom.

⁵⁵ The last Office Action, at page 25, paragraph e.

combinable with the idle mode cell reselection of *Amerga* for the reasons detailed *supra*. The Examiner has apparently ignored the “traffic mode” teaching of *Choi* for the convenience of making his obviousness rejection. This is improper, because a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention.⁵⁶

Further, the person of ordinary skill in the art would not have modified *Amerga* to include the handoff process of *Choi* for handling the cell reselection in the idle mode, because *Choi* does not teach or suggest that his handoff process is at all usable for the idle mode (because a call must be made). The Examiner’s appears to provide the same response⁵⁷ discussed in the immediately above paragraph to this argument. Appellant respectfully disagrees for the same reasons detailed immediately above. Appellant further submits that the Examiner has failed to show that the traffic mode handoff of *Choi* would be combinable with the idle mode cell reselection of *Amerga* with a reasonable expectation of success.

Finally, assuming *arguendo* that it would have been obvious to have modified *Amerga* to include the handoff process of *Choi* for handling the cell reselection in the idle mode, the combination would still require a call to be made (per *Choi*) thereby failing to meet the claim requirement that the idle mode be kept. The Examiner’s response⁵⁸ is essentially the same and, therefore, Appellant respectfully disagrees for at least the reasons advanced above.

Accordingly, Appellant respectfully submits that *Amerga* and *Choi* singly or in combination do not teach or suggest the claim feature at issue.

C. The Examiner’s rejection lacks a clear articulation of the reason(s) why the claimed invention would have been obvious.

The teachings of *Amerga* and *Choi*, as applied in the last Office Action, are summarized below.

⁵⁶ *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

⁵⁷ The last Office Action, at page 25, paragraph e.

⁵⁸ The last Office Action, at page 25, paragraph f.

<i>Amerga</i>	Technique for W-CDMA to W-CDMA cell reselection using Squal, Ec/Io etc.
<i>Choi</i>	Technique for W-CDMA to CDMA handoff using completely different criteria
Examiner's combination as best understood	<i>Amerga</i> cell reselection technique in W-CDMA to CDMA handoff per <i>Choi</i> (i.e., <i>Choi</i> W-CDMA to CDMA handoff technique would be thrown away)

Assuming *arguendo* that it was proper to modify the terminal of *Amerga* into a MM-MB terminal as taught by *Choi*, the Examiner has still failed to provide any articulated reasoning for the following proposed combination/modification:

Why it would have been obvious to apply the *Amerga* cell reselection technique (which is W-CDMA to W-CDMA) to perform W-CDMA to CDMA handoff ? Or, why a person of ordinary skill in the art would not have used the *Choi* W-CDMA to CDMA handoff technique in the combined MM-MB terminal ?

Appellant respectfully submits that, a person of ordinary skill in the art, given the above teachings cited by the Examiner, would have simply used

- the *Choi* technique whenever a W-CDMA to CDMA handoff is required and
- the *Amerga* technique whenever a W-CDMA to W-CDMA cell reselection is necessary.

Such person of ordinary skill in the art would not have seen any reason why the two techniques should be mixed in the confusing manner the Examiner apparently proposed.

D. The applied references, especially *Choi*, fail to teach or suggest the claimed

(d) if it is determined at step (c) that the time lapse exceeds H_d ,
activating the CDMA-2000 modem,...

The Examiner alleged ⁵⁹ that *Amerga* discloses the feature at column 9 lines 12-17. Appellant respectfully disagrees, because the cited teaching of *Amerga* is about an initiation of the cell reselection process, without disclosing or suggesting any modem activation, much less CDMA-2000 modem activation.

Assuming *arguendo* that it was proper to modify the terminal of *Amerga* into a MM-MB terminal as taught by *Choi*, such MM-MB terminal would include a CDMA modem. However, the Examiner has still failed to provide any articulated reasoning as to

Why it would have been obvious to activate the CDMA modem, instead of initiating the cell reselection process as expressly required by *Amerga* when the cell selection has failed for N consecutive cycles ?

Appellant respectfully submits that even if the terminal of *Amerga* was properly modifiable into a MM-MB terminal as taught by *Choi*, when the cell selection has failed for N consecutive cycles,⁶⁰ the MM-MB terminal would still initiate the *Amerga* cell reselection process within W-CDMA network, instead of activating the CDMA modem as apparently alleged by the Examiner.

E. The applied references, especially *Choi*, fail to teach or suggest the claimed

(e) performing an initialization for a CDMA-2000 system to switch the MM-MB terminal from the WCDMA idle state into a CDMA-2000 idle state.

The Examiner alleged ⁶¹ that *Amerga* discloses the feature at FIGs. 5A-5B and column 9 lines 12-57. Appellant respectfully disagrees, because the cited teachings of *Amerga* are about cell reselection in a W-CDMA system, rather than any switching to or initialization of CDMA system/state.

Assuming *arguendo* that it was proper to modify the terminal of *Amerga* into a MM-MB terminal as taught by *Choi*, such MM-MB terminal would include a CDMA modem. However,

⁵⁹ The last Office Action, at page 4, line 2.

⁶⁰ *Amerga*, column 9 lines 15-16.

⁶¹ The last Office Action, at page 4, lines 3-5.

it is still unclear from the Examiner's rationale as to how the *Amerga* W-CDMA cell reselection would, in such MM-MB terminal, be considered as the same as switching to or initialization of CDMA system/state.

Further, since *Choi* requires a traffic mode for W-CDMA to CDMA handoff, there would be no reasonable combination of the references that would teach or disclose the claimed idle-to-idle switching.

For any of the reasons A-E detailed above, Appellant respectfully submits that independent claim 1, as well as the respective dependent claims, are separately patentable over the applied art of record.

Claim 4

The applied references, especially *Amerga*, fail to teach or suggest that "the initialization at step (e) is performed through a system determination substate, a pilot channel acquisition substate and a synchronous channel acquisition substate."

The Examiner alleged that the claim features are taught by *Amerga* at FIG. 5A, boxes 504, 502 and 552, respectively. Appellant respectfully disagrees, because the cited portions of *Amerga* do not at all teach or suggest any substates as presently claimed. Further except for box 552 (cell reselection) which more or less resembles, if at all, an initialization, boxes 502 and 504 of *Amerga* disclose processes that are performed well before any initialization, and cannot be part of the claimed initialization.

The Examiner's response⁶² is noted. Basically, the Examiner alleged that *Amerga*'s "N consecutive DRX cycles fail" is readable on the claimed substates. Appellant respectfully disagrees, because the Examiner's attempt to read a single state (N consecutive failed DRX cycles) of *Amerga* on multiple substates of the claimed subject matter is absolutely improper.

⁶² The last Office Action, at page 25, paragraph g.

Further, a person of ordinary skill in the art would understand that the *Amerga* “N consecutive failed DRX cycles” is neither indicative nor suggestive of the claimed synchronous channel acquisition substate.

Accordingly, Appellant respectfully submits that claim 4 is separately patentable over the applied art of record.

Claim 6

The rejection of claim 6 is respectfully traversed for at least reasons A, C, D, E detailed with respect to claim 1. The rejection of claim 6 is further traversed for the following reasons.

F. The applied references singly or in combination fail teach or suggest the claimed

- (d) before the MM-MB terminal leaves the overlay zone and while the WCDMA modem is still actively handling the WCDMA call, if it is determined at step (c) that the time lapse exceeds H_d , activating the CDMA-2000 modem, and then determining whether the WCDMA call has been terminated; and
 - (e) if the WCDMA call is determined at step (d) to have been terminated, performing an initialization for a CDMA-2000 system to switch the MM-MB terminal into a CDMA-2000 idle state.

In other words, the claim language requires (i) a determination whether the WCDMA call has been terminated and (ii) an initialization to switch the MM-MB terminal into a CDMA-2000 idle state after the WCDMA call has been terminated.

The Examiner alleged⁶³ that the claim features are taught by *Amerga*. Appellant respectfully disagrees, because the cited portion so *Amerga*, i.e., boxes 550, 552 in FIG. 5A, column 9 lines 12-57, mention nothing about any determination of a call termination. All that is disclosed in the cited portions is about cell selection which is irrelevant to the claim feature at issue, i.e., call termination. The Examiner’s additional explanation⁶⁴ also fails to support the rejection, because all the cited teachings are for a cell reselection/selection in a W-CDMA idle state. No WCDMA call exists (and hence no call termination determination is necessary) in the cited teachings of *Amerga*.

⁶³ The last Office Action, at page 7, paragraph (d).

The Examiner's additional reliance on *Amerga*'s column 4 lines 48-52 is noted. The cited portion indicates that the cell selection of *Amerga* can be applied to a mode other than the idle mode. Assuming *arguendo* that the *Amerga*'s cell selection can be applied to a traffic mode where a call is being in progress, it is still unclear from the Examiner's rationale how *Amerga* teaches the claimed (i) determination whether the WCDMA call has been terminated and (ii) initialization to switch the MM-MB terminal into a CDMA-2000 idle state after the WCDMA call has been terminated.

The *Amerga* reference clearly fails to explicitly teach the claim features at issue.

The Examiner has also failed to provide "a basis in fact and/or technical reasoning to reasonably support the determination that the [claim feature] necessarily flows from the teachings of the applied prior art."⁶⁵ At the very least, it is unclear from the Final Office Action as to why *Amerga* necessarily checks whether the call has been terminated or not, while performing a call reselection during a traffic mode ?

Finally, the Examiner has further failed to provide a clear articulation⁶⁶ of the reason(s) why it would have been obvious to have modified the *Amerga* traffic mode's cell selection to make (i) a determination whether the WCDMA call has been terminated. The Examiner's additional response⁶⁷ should fail for the reasons detailed *supra*.

The Examiner has also failed to provide a clear articulation of the reason(s) why in *Amerga* it would have been obvious to wait until the call has been terminated to make the initialization, designated at (ii) above.

It should be now clear that *Amerga* fails to teach the claim feature at issue, both explicitly and implicitly. The reference also fails to render obvious the claim feature at issue. The

⁶⁴ The last Office Action, at page 26, paragraph h.

⁶⁵ *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis added).

⁶⁶ Rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR International Co. v. Teleflex Inc.*, 550 U.S. at 417, 82 USPQ2d at 1396.

⁶⁷ The last Office Action, at page 26, paragraph i.

deficiency of *Amerga* is not curable by the teaching reference of *Choi* which is relied on for other claim limitations.

Accordingly, Appellant respectfully submits that even if *Amerga* and *Choi* were combinable (which Appellant contends to the contrary), the combination would still fail to teach or suggest the claimed features (i) and (ii) as detailed above.

For any of the relevant reasons detailed above, Appellant respectfully submits that independent claim 6, as well as the respective dependent claims, are patentable over the applied art of record.

Claim 9

G. The applied references, especially *Amerga*, do not teach or suggest the claimed steps (d1)-(d3) which are performed after a determination that the WCDMA call has not been terminated (as opposed to step (e) of base claim 6 which is performed upon an opposite determination that the WCDMA call has been terminated).

It should be noted that claim 9, when read together with claim 6, defines two branches of actions: one to be performed when the WCDMA call has been terminated (step (e) of claim 6), the other to be performed when the WCDMA call has not been terminated (claim 9). Since *Amerga* does not make a determination as to whether the WCDMA call has been terminated or not (see the discussion C with respect to claim 6 immediately above), the reference singly or in combination with *Choi* does not teach or suggest the two branches of action recited in claim 9 and the condition (i.e., call termination) upon which one of the branches of action is to be performed.

The Examiner's response⁶⁸ is noted but seems repetitive of the Examiner's same point discussed above. The Examiner's response should fail because:

- there is no W-CDMA call made in the cited teachings of *Amerga*, and

⁶⁸ The last Office Action, at page 27, paragraph j.

- the signal strength (Ec/Io) of *Amerga* is neither indicative nor suggestive of the claimed call termination; they are two different concepts, one relates to the quality of the link (Ec/Io) the other relates to whether any data is being transmitted over the link (call terminated or not). No person of ordinary skill in the art would confuse the two concepts as the Examiner apparently did in this rejection.

H. The applied references, especially *Amerga*, do not teach or suggest the claimed thresholds, i.e., TH_{OFF} which is lower than TH_{ON}.

According to the Examiner's own rationale regarding claim 6 (from which claim 9) depends, the claimed TH_{ON} is met by Q_{qual min}.⁶⁹ The Examiner with respect to claim 9, without any reasoning or explanation, held that the same TH_{ON} is met by another threshold of *Amerga*, i.e., S_{intrasearch Floor}.⁷⁰

With respect to TH_{OFF}, the Examiner cited⁷¹ column 10 lines 44-49 of *Amerga* which does not at all mention any threshold as well as any relationship (greater/lower) to the other threshold (Q_{qual min} or S_{intrasearch Floor}).

The Examiner's failure to specifically identify the claim features in the applied reference does not amount to a clear articulation of the reason(s) why the claimed invention would have been obvious.⁷²

The Examiner defended⁷³ his improper interpretation of the prior art, alleging that all S parameters directly proportionate to Q_{qual}. Appellant respectfully disagrees, because equations (2) and (3) of *Amerga* do not imply any such proportion. In addition, the parameter at issue, i.e., S_{intrasearch} is set over the air⁷⁴ and is independent of Q_{qual min}.

⁶⁹ The last Office Action, at page 6, line 9 from bottom.

⁷⁰ The last Office Action, at page 9, line 12 from bottom.

⁷¹ The last Office Action, at page 9, line 8 from bottom.

⁷² Rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR International Co. v. Teleflex Inc.*, 550 U.S. at 417, 82 USPQ2d at 1396.

⁷³ The last Office Action, at page 28, paragraph k.

⁷⁴ *Amerga*, at column 9 lines 29-30.

The rejection is therefore still improper.

I. The applied references, especially *Amerga*, do not teach or suggest the claimed another time lapse [which] is a cumulative time during which the Ec/Io value remains higher than TH_{OFF}.

It should be noted that claim 9 when read together with claim 6 from which claim 9 depends requires a time lapse [which] is a cumulative time during which the Ec/Io value remains lower than TH_{ON}. In other words, the claim language requires two different time lapses.

The Examiner cited exactly the same citation of *Amerga* (i.e., column 10 lines 44-49) to read on both claimed time lapses.⁷⁵ The Examiner's failure to specifically identify the claim features in the applied reference does not amount to a clear articulation of the reason(s) why the claimed invention would have been obvious.⁷⁶

It should be further noted that column 10 lines 44-49, contrary to the Examiner's allegation,⁷⁷ does not disclose multiple timers and do not teach or suggest multiple lapse times as claimed.

The rejection is therefore improper.

J. The applied references, especially *Amerga*, do not teach or suggest the claimed "(d3) if it is determined at step (d2) that said another time lapse exceeds Hc, deactivating the CDMA-2000 modem that has been activated at step (d) and returning to step (a)."

The Examiner's cited portion of *Amerga*, i.e., column 9 lines 9-21,⁷⁸ is about cell reselection which is neither indicative nor suggestive of the claimed modem deactivation.

⁷⁵ The last Office Action, at page 6, line 3 from bottom (i.e., "time lapse") and page 9, lines 8-10 from bottom (i.e., "another time lapse").

⁷⁶ Rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR International Co. v. Teleflex Inc.*, 550 U.S. at 417, 82 USPQ2d at 1396.

⁷⁷ The last Office Action, at page 28, paragraph I.

⁷⁸ The last Office Action, at page 10, line 2.

Appellant further notes that almost the exact same citation of *Amerga*, i.e., column 9 lines 12-17, has been interpreted by the Examiner as teaching activation of the same CDMA-2000 modem.⁷⁹

The Examiner's failure to specifically identify the claim features in the applied reference does not amount to a clear articulation of the reason(s) why the claimed invention would have been obvious.⁸⁰

The Examiner's defense⁸¹ of his improper interpretation of reading a single teaching of *Amerga* on two opposite claim limitations is completely off point. Appellants respectfully submit that the Examiner's interpretation of the applied reference is wrong on its face as detailed above.

The rejection is therefore still improper.

For any of the relevant reasons detailed above, Appellant respectfully submits that claim 9, as well as the respective dependent claims, are separately patentable over the applied art of record.

Claim 10

As to claim 10, the applied references, especially *Amerga*, do not teach or suggest "if it is determined at step (d1) that the Ec/Io value is not higher than TH_{OFF}, the MM-MB terminal returns to step (d) to determine once more whether the WCDMA call has been terminated."

In other words, claim 10 when read together with claims 6 and 9 requires two determinations whether the call has been terminated or not. The Examiner has failed to provide a clear articulation of the reason(s) why *Amerga* discloses such two determinations.⁸²

⁷⁹ The last Office Action, at page 7, line 5.

⁸⁰ Rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR International Co. v. Teleflex Inc.*, 550 U.S. at 417, 82 USPQ2d at 1396.

⁸¹ The last Office Action, at page 28, paragraph m.

⁸² The last Office Action, at page 10, paragraph 16.

The Examiner's response⁸³ is deemed repetitive of the points discussed above, and is therefore respectfully traversed for the same reasons. In addition, it is still unclear from the Examiner's response as to how the art, especially *Amerga*, teaches **two times** of determining whether the W-CDMA call (which does not exist in the cited teachings of *Amerga*) has been terminated or not.

The rejection is therefore still improper.

Appellant respectfully submits that claim 10 is separately patentable over the references as applied by the Examiner.

Claim 11

As to claim 11, the applied references, especially *Amerga*, do not teach or suggest that "the CDMA-2000 modem is **deactivated** at step (d3) **regardless** of whether the Ec/Io value is higher than TH_{ON} or not."

The Examiner again cited⁸⁴ the same teaching of *Amerga*, i.e., column 9 lines 9-21, which has been interpreted in the rejection of claim 6 as teaching **conditional activation** of the same CDMA-2000 modem, or in the rejection of claim 9 as teaching **conditional deactivation** of the same CDMA-2000 modem.

The Examiner's failure to specifically identify the claim features in the applied reference does not amount to a **clear** articulation of the reason(s) why the claimed invention would have been obvious.⁸⁵

The Examiner again repeats⁸⁶ the same position in his response. The Examiner's response is not on point, at least because it did not address the distinction between **regardless** in the claim and apparently "**conditional**" as disclosed by *Amerga*. Further, the Examiner's

⁸³ The last Office Action, at page 29, paragraph n, which is similar to paragraphs h, j.

⁸⁴ The last Office Action, at page 11, paragraph 17.

⁸⁵ Rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR International Co. v. Teleflex Inc.*, 550 U.S. at 417, 82 USPQ2d at 1396.

⁸⁶ The last Office Action, at page 30, paragraph o, which is similar to paragraphs h, Julius; n.

interpretation of the same prior art teaching on two opposite claim features is a very clear indication of impropriety of the rejection.

The rejection is therefore still improper.

Appellant respectfully submits that claim 11 is separately patentable over the references as applied by the Examiner.

Claim 12

As to claim 12, the applied references, especially *Amerga*, do not teach or suggest “if it is determined at step (d2) that the another time lapse does not exceed the CDMA-2000 OFF condition time H_c , the MM-MB terminal returns to step (d) to determine **once more** whether the WCDMA call has been terminated.”

In other words, claim 12 when read together with claims 6, 9 and 10 requires **three** determinations whether the call has been terminated or not. The Examiner has failed to provide a **clear** articulation of the reason(s) why *Amerga* discloses such three determinations.⁸⁷

The Examiner’s response⁸⁸ is deemed repetitive of the points discussed above, and is therefore respectfully traversed for the same reasons. In addition, it is still unclear from the Examiner’s response as to how the art, especially *Amerga*, teaches **three times** of determining whether the W-CDMA call (which does not exist in the cited teachings of *Amerga*) has been terminated or not.

The rejection is therefore still improper.

Appellant respectfully submits that claim 12 is separately patentable over the references as applied by the Examiner.

Claim 17

⁸⁷ The last Office Action, at page 10, paragraph 18.

⁸⁸ The last Office Action, at page 30, paragraph p, which is similar to paragraphs h, j, n, o.

K. Claim 17 requires, among other things, an idle-to-idle transition.

The Examiner's combination of *Amerga* and *Choi* necessarily include a call being made as taught by *Choi*.⁸⁹

L. Claim 17 requires, among other things, "(a) monitoring a paging channel of a CDMA-2000 system periodically while maintaining the MM-MB terminal in the CDMA-2000 idle state."

The applied teachings of *Amerga* is about the W-CDMA system⁹⁰ which is not readable on the claimed CDMA-2000 system/idle state.

M. Claim 17 requires, among other things, "(b) analyzing an overhead message received from the CDMA-2000 system and determining whether the MM-MB terminal is located in the overlay zone."

The applied teachings of *Amerga* is about the W-CDMA system⁹¹ which is not readable on the claimed CDMA-2000 system/message.

N. Claim 17 requires, among other things, "(c) if the MM-MB terminal is determined to be located in the overlay zone, activating the WCDMA modem while maintaining the CDMA-2000 modem in an activated state."

The applied teachings⁹² of *Amerga* is about whether a cell reselection is required or not,⁹³ which is not readable on the claimed modem activation.

O. In addition, the applied references, especially *Amerga*, fail to teach or suggest "the MM-MB terminal determines whether the MM-MB terminal is located in the overlay zone by investigating a base ID of a system parameter message included in the overhead message analyzed at step (b)."

⁸⁹ Note the discussion at B *supra* with respect to claim 1.

⁹⁰ The last Office Action, page 12, paragraph (a).

⁹¹ The last Office Action, page 12, paragraph (b).

⁹² The last Office Action, page 12, paragraph (c).

⁹³ *Amerga* at column 8 lines 1-10.

The Examiner alleged ⁹⁴ that the claim feature would have been obvious over the practice commonly known in the art. Appellant respectfully disagrees. Assuming *arguendo* that the Examiner's statement about the common practice is correct, it is still unclear why it would have been obvious to use such PN code sets to determine whether the MM-MB terminal is located in the overlay zone ? Isn't it the Examiner's position that *Amerga* determines whether the MM-MB terminal is located in the overlay zone by signal level ⁹⁵ ? Why would a person of ordinary skill in the art have replaced the signal level of *Amerga* with PN code set to determine the MM-MB terminal's location in an overlay zone ? Whether such replacement would have been reasonably expected to be successful ?

None of the above questions are adequately explained in the Examiner's rejection. Therefore, a clear articulation of the reason(s) why the claimed invention would have been obvious has not been set forth.

For any of the reasons detailed above, Appellant respectfully submits that claim 17 is separately patentable over the references as applied by the Examiner.

Claim 21

The rejection of claim 21 is respectfully traversed for at least reasons L, M, N, O detailed with respect to claim 17, and reason F detailed with respect to claim 6. The rejection of claim 21 is further traversed for the following reasons.

P. Claim 20 requires, among other things, (i) a determination whether the CDMA-2000 call has been terminated while maintaining the MM-MB terminal in the CDMA-2000 traffic state, and (ii) an activation of the WCDMA modem if the CDMA-2000 call is determined to have been terminated.

⁹⁴ The last Office Action, at page 14, paragraph 26.

⁹⁵ The last Office Action, page 12, paragraph (b).

The Examiner's combination of *Amerga* and *Choi* fail to meet the claim features at issue⁹⁶ notwithstanding the additional response⁹⁷ which is deemed repetitive of the points that have been already discussed *supra*.

The rejection is therefore improper.

Appellant respectfully submits that claim 21 is separately patentable over the references as applied by the Examiner.

Claim 24

The rejection of claim 24, as well as the respective dependent claims, is respectfully traversed for at least reason A detailed with respect to claim 1.

Claim 27

The rejection of claim 27 is respectfully traversed for at least reasons G-J detailed with respect to claim 9.

⁹⁶ Note the discussion *supra* with respect to claim 6.

⁹⁷ The last Office Action, page 31, paragraph r.

Each of the Examiner's rejections has been traversed. Accordingly, Appellant respectfully submits that all claims on appeal are considered allowable. Accordingly, reversal of the Examiner's Final Rejection is believed appropriate and courteously solicited.

If for any reason this Appeal Brief is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned, Appellant's attorney of record.

To the extent necessary, a petition for an extension of time under *37 C.F.R. 1.136* is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1. A method of switching between a WCDMA modem and a CDMA-2000 modem of an MM-MB (multimode-multiband) terminal, when the MM-MB terminal being in a WCDMA idle state moves from an overlay zone into a CDMA-2000 zone, said method comprising the steps of:

- (a) receiving a WCDMA signal transmitted from a WCDMA system, and measuring an Ec/Io (energy of carrier/interference of others) value by using the WCDMA signal;
- (b) determining whether the Ec/Io value is lower than a predetermined CDMA-2000 ON threshold TH_{ON} ;
- (c) if it is determined at step (b) that the Ec/Io value is lower than TH_{ON} , starting to measure a time lapse, wherein the time lapse is a cumulative time during which the Ec/Io value remains lower than the CDMA-2000 ON threshold TH_{ON} , and determining whether the time lapse exceeds a preset CDMA-2000 ON condition time H_d ;
- (d) if it is determined at step (c) that the time lapse exceeds H_d , activating the CDMA-2000 modem, wherein the CDMA-2000 modem is activated before the MM-MB terminal leaves the overlay zone and while the WCDMA modem is still being activated to keep the MM-MB terminal in the WCDMA idle state; and
- (e) performing an initialization for a CDMA-2000 system to switch the MM-MB terminal from the WCDMA idle state into a CDMA-2000 idle state.

2. The method of claim 1, wherein

the MM-MB terminal inspects a CPICH (common pilot channel) periodically to receive the WCDMA signal at step (a).

4. The method of claim 1, wherein the initialization at step (e) is performed through a system determination substate, a pilot channel acquisition substate and a synchronous channel acquisition substate.

5. The method of claim 1, wherein, after being switched into the CDMA-2000 idle state at step (e), the MM-MB terminal deactivates the WCDMA modem.

6. A method of switching between a WCDMA modem and a CDMA-2000 modem of an MM-MB terminal, when the MM-MB terminal moves from an overlay zone into a CDMA-2000 zone while handling a WCDMA call, said method comprising the steps of:

(a) while the MM-MB terminal is handling the WCDMA call by the active WCDMA modem, receiving a WCDMA signal transmitted from a WCDMA system, and measuring an Ec/Io (energy of carrier/interference of others) value by using the WCDMA signal;

(b) determining whether the Ec/Io value is lower than a predetermined CDMA-2000 ON threshold TH_{ON} ;

(c) if it is determined at step (b) that the Ec/Io value is lower than TH_{ON} , starting to measure a time lapse, wherein the time lapse is a cumulative time during which the Ec/Io value remains lower than the CDMA-2000 ON threshold TH_{ON} , and determining whether the time lapse exceeds a preset CDMA-2000 ON condition time H_d ;

(d) before the MM-MB terminal leaves the overlay zone and while the WCDMA modem is still actively handling the WCDMA call, if it is determined at step (c) that the time lapse exceeds H_d , activating the CDMA-2000 modem, and then determining whether the WCDMA call has been terminated; and

(e) if the WCDMA call is determined at step (d) to have been terminated, performing an initialization for a CDMA-2000 system to switch the MM-MB terminal into a CDMA-2000 idle state.

7. The method of claim 6, wherein

the MM-MB terminal inspects a CPICH (common pilot channel) periodically to receive the WCDMA signal at step (a); and

the CDMA-2000 modem is activated in step (d) while the WCDMA call is still being handled by the WCDMA modem.

9. The method of claim 6, wherein, if the WCDMA call is determined at step (d) to have not been terminated, the method further includes the steps of:

(d1) determining whether the Ec/Io value is higher than a predetermined CDMA-2000 OFF threshold TH_{OFF} which is lower than TH_{ON} ;

(d2) if it is determined at step (d1) that the Ec/Io value is higher than TH_{OFF} , starting to measure another time lapse, wherein said another time lapse is a cumulative time during which the Ec/Io value remains higher than TH_{OFF} , and determining whether said another time lapse exceeds a preset CDMA-2000 OFF condition time H_c ; and

(d3) if it is determined at step (d2) that said another time lapse exceeds H_c , deactivating the CDMA-2000 modem that has been activated at step (d) and returning to step (a).

10. The method of claim 9, wherein, if it is determined at step (d1) that the Ec/Io value is not higher than TH_{OFF} , the MM-MB terminal returns to step (d) to determine once more whether the WCDMA call has been terminated.

11. The method of claim 9, wherein the CDMA-2000 modem is deactivated at step (d3) regardless of whether the Ec/Io value is higher than TH_{ON} or not.

12. The method of claim 10, wherein, if it is determined at step (d2) that the another time lapse does not exceed the CDMA-2000 OFF condition time H_c , the MM-MB terminal returns to step (d) to determine once more whether the WCDMA call has been terminated.

13. The method of claim 6, wherein step (e) further includes the sub-steps of:

- (e1) inspecting another service channel FA (frequency assignment) of the WCDMA system;
- (e2) determining whether another WCDMA signal is found; and
- (e3) if said another WCDMA signal is found, switching the MM-MB terminal into a WCDMA idle state.

14. The method of claim 13, wherein, if it is determined at sub-step (e2) that no other WCDMA signal is found, the MM-MB terminal performs said initialization into the CDMA-2000 system to be switched into said CDMA-2000 idle state.

15. The method of claim 14, wherein, after being switched into the CDMA-2000 idle state, the MM-MB terminal deactivates the WCDMA modem.

17. A method of switching between a CDMA-2000 modem and a WCDMA modem of an MM-MB (multimode-multiband) terminal, when the MM-MB terminal being in a CDMA-2000 idle state moves from a CDMA-2000 zone into an overlay zone, said method comprising the steps of:

- (a) monitoring a paging channel of a CDMA-2000 system periodically while maintaining the MM-MB terminal in the CDMA-2000 idle state;
- (b) analyzing an overhead message received from the CDMA-2000 system and determining whether the MM-MB terminal is located in the overlay zone;

(c) if the MM-MB terminal is determined to be located in the overlay zone, activating the WCDMA modem while maintaining the CDMA-2000 modem in an activated state; and

(d) performing an initialization process for a WCDMA system to switch the MM-MB terminal from the CDMA-2000 idle state into a WCDMA idle state;

wherein the MM-MB terminal determines whether the MM-MB terminal is located in the overlay zone by investigating a base ID of a system parameter message included in the overhead message analyzed at step (b).

21. A method of switching between a CDMA-2000 modem and a WCDMA modem of an MM-MB (multimode-multiband) terminal, when the MM-MB terminal being in a CDMA-2000 traffic state moves from a CDMA-2000 zone into an overlay zone, said method comprising the steps of:

(a) monitoring a paging channel of a CDMA-2000 system periodically while maintaining the MM-MB terminal in the CDMA-2000 traffic state and the CDMA modem in an activated state to handle a CDMA-2000 call;

(b) analyzing an overhead message received from the CDMA-2000 system and determining whether the MM-MB terminal is located in the overlay zone;

(c) if the MM-MB terminal is determined to be located in the overlay zone, determining whether the CDMA-2000 call has been terminated while maintaining the MM-MB terminal in the CDMA-2000 traffic state;

(d) if the CDMA-2000 call is determined to have been terminated, activating the WCDMA modem; and

(e) performing an initialization process for a WCDMA system to switch the MM-MB terminal into a WCDMA idle state;

wherein the MM-MB terminal determines whether the MM-MB terminal is located in the overlay zone by investigating a base ID of a system parameter message included in the overhead message analyzed at step (b).

24. A multimode-multiband terminal capable of accommodating both a synchronous CDMA-2000 service and an asynchronous WCDMA service and operating in at least two frequency bands, said terminal comprising:

an RF (radio frequency) antenna for transceiving a CDMA-2000 signal and/or a WCDMA signal;

an RF transceiver coupled to the RF antenna for demodulating a WCDMA pilot signal received from the RF antenna and outputting the demodulated WCDMA pilot signal;

a pilot signal measurement unit coupled to the RF transceiver for measuring an intensity of the demodulated WCDMA pilot signal to generate an Ec/Io value;

a WCDMA modem and a CDMA-2000 modem coupled to the RF transceiver for processing a digital signal received from the RF transceiver and performing a call processing according to protocols defined by a WCDMA standard and a CDMA-2000 standard, respectively;

a memory for storing a modem-to-modem switching program configured for switching between the WCDMA modem and the CDMA-2000 modem based the Ec/Io value; and

a controller coupled to the pilot signal measurement unit, the memory and the WCDMA and CDMA-2000 modems for

(i) receiving the Ec/Io value from the pilot signal measurement unit, and

(ii) loading and executing the modem-to-modem switching program from the memory to activate the CDMA-2000 modem, while the WCDMA modem is still being activated, if a time lapse, during which the Ec/Io value remains lower than a predetermined CDMA-2000 ON threshold TH_{ON} , is greater than a preset CDMA-2000 ON condition time H_d .

25. The multimode-multiband terminal of claim 24, wherein the controller loads the modem-to-modem switching program at the moment the Ec/Io value starts to be lower than the CDMA-2000 ON threshold TH_{ON} or when it is determined that the multimode-multiband terminal enters an overlay zone by analyzing system information.

26. The multimode-multiband terminal of claim 24, wherein, only after the CDMA-2000 modem has been activated and an initialization into a CDMA-2000 system has been completed so that the multimode-multiband terminal has been completely switched into a CDMA-2000 idle state, does the controller deactivate the WCDMA modem.

27. The multimode-multiband terminal of claim 24, wherein, even if the CDMA-2000 modem has been activated, based on the Ec/Io value being lower than TH_{ON} during the time lapse greater than H_d , the controller still deactivates the CDMA-2000 modem if another time lapse, during which the Ec/Io value is maintained higher than a predetermined CDMA-2000 OFF threshold TH_{OFF} , is greater than a preset CDMA-2000 OFF condition time H_c ,
wherein TH_{ON} is greater than TH_{OFF} .

28. The multimode-multiband terminal of claim 24, wherein, only after the WCDMA modem has been activated and an initialization into a WCDMA system has been completed so that the multimode-multiband terminal has been completely switched into a WCDMA idle state, does the controller deactivate the CDMA-2000 modem.

29. The multimode-multiband terminal of claim 27, wherein information upon the CDMA-2000 ON threshold TH_{ON} , the CDMA-2000 ON condition time H_d , the CDMA-2000 OFF threshold TH_{OFF} and the CDMA-2000 OFF condition time H_c are stored in the memory.

30. The multimode-multiband terminal of claim 24, further comprising a timer for measuring the time lapse and reporting the time lapse to the controller.

IX. EVIDENCE APPENDIX

None

X. RELATED PROCEEDINGS APPENDIX

None